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Coyote Creek
Riparian Station

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5 June 1990

Memorandum

To: ✓ Dr. Bernard H. Goldner, Santa Clara Valley Water District
Mr. Joseph Chen, Santa Clara Valley Water District
Mr. John Stanley, HRG/John Stanley & Associates
Dr. H. Thomas Harvey, H. T. Harvey & Associates

From: L. Richard Mewaldt, Coyote Creek Riparian Station Dick Mewaldt

Subject: Lower Coyote Creek flood of Memorial Day 28 May 1990.

As presumptive on-site manager for the Lower Coyote Creek Flood Control Reach 1A Management Area we checked facilities, revegetation areas, and habitat conditions following the unexpectedly heavy rains of the night of 27-28 May. Rain on that night at our CCRS field station (in Reach 2) was 1.55 inches. Rain-fall was 2.70 inches at my home in east San Jose - in the Coyote Creek water shed. High tide of 6.5' (Golden Gate Bridge) reached crest at about 0320 (28 May) in South Coyote Slough. As flood waters crested about 1000 on 28 May, the water over all of Reach 1 to the NW flood gates (Figure 1) was at 7.25 feet NGVD.

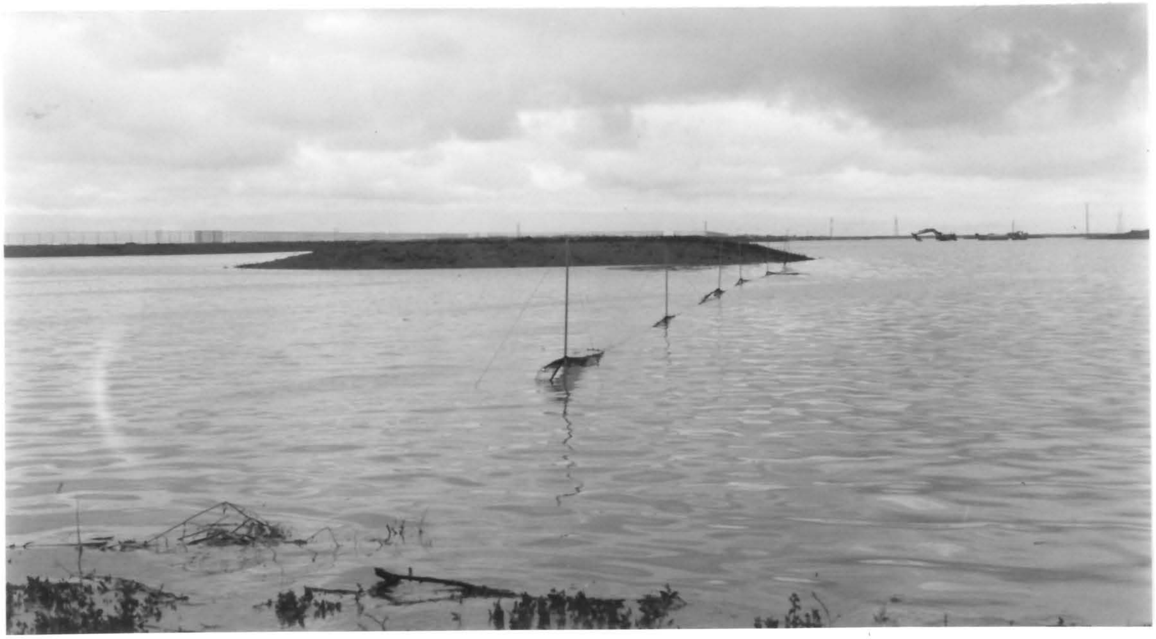

Figure 1. View from haul road of Lower Coyote Creek flood waters over Waterbird Pond, Salt Marsh Harvest Mouse Management Area and SJPD Bomb Disposal Area to Leslie Salt Company Pond #18 on the horizon at 1000 on 28 May 1990. Poles support CCRS furled mist nets normally 3-4 feet above pond water level.

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In early May the Water District installed temporary multipurpose dams across Coyote Creek intersecting delta islands 1 and 2 (Figure 2). Although the four culverts (2 in each dam) were open, they could not carry the stream flow. The surplus water, far exceeding the amount carried by the culverts, flowed across the haul road (7 feet NGVD) into the 16-acre Waterbird Pond (Figures 3 and 4). Pond level the previous day had been 2.58 feet NGVD. During the night of 27-28 May the pond filled and overflowed onto the Salt Marsh Harvest Mouse (SMHM) Management Area, and the San Jose PD Bomb Disposal Area. Ground levels in these two areas vary from about 0 to 3.5 feet NGVD. At mid-morning on 28 May, the entire area as far as Leslie Salt Pond 18, had a water level of 7.25 feet (Figures 5 and 6).

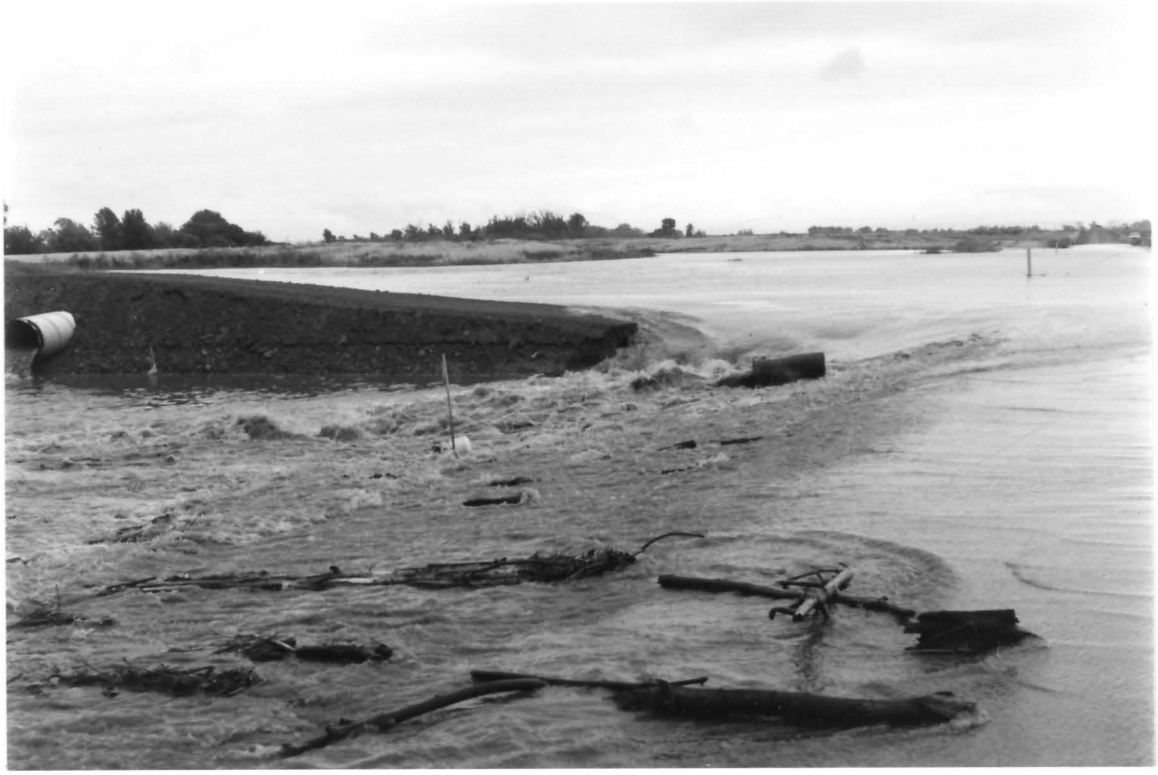

Figure 2. Overflow of Coyote Creek temporary dam 1000 on 28 May 1990 (Reach 1). Whereas most of the water is flowing across the haul road into the waterbird pond, some (in foreground) is flowing back into the main channel of Coyote Creek.

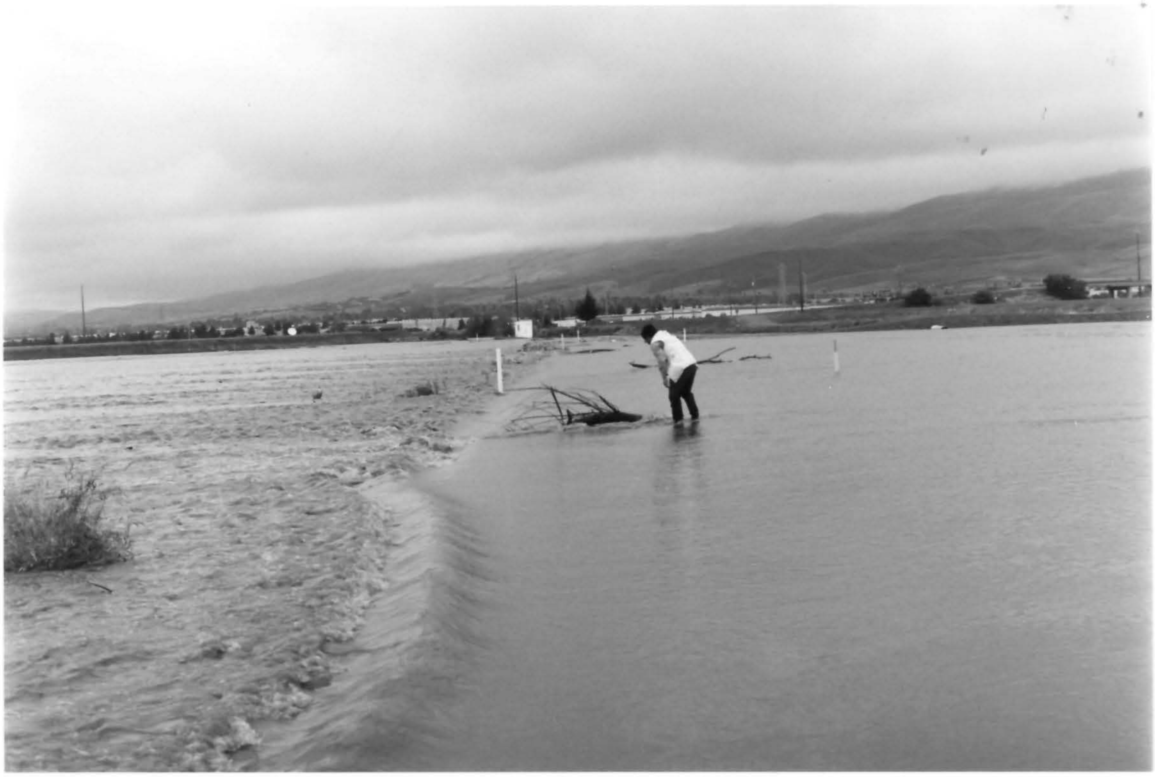

Figure 3. Coyote Creek water backed-up by temporary dams (1000, 28 May 1990) is flowing across haul road into the waterbird pond.

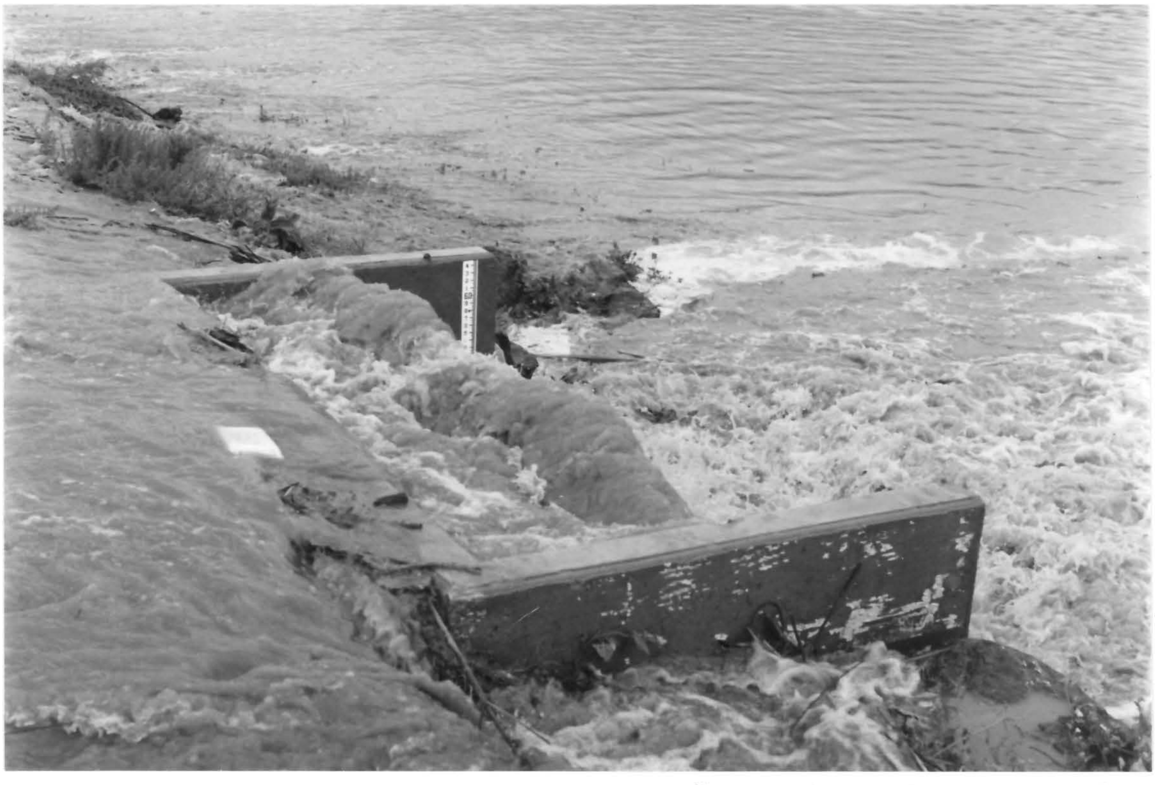

Figure 4. Reverse flow through two 24" intake culverts against and over flash-boards from waterbird pond into main channel of Coyote Creek (1000, 28 May 1990).

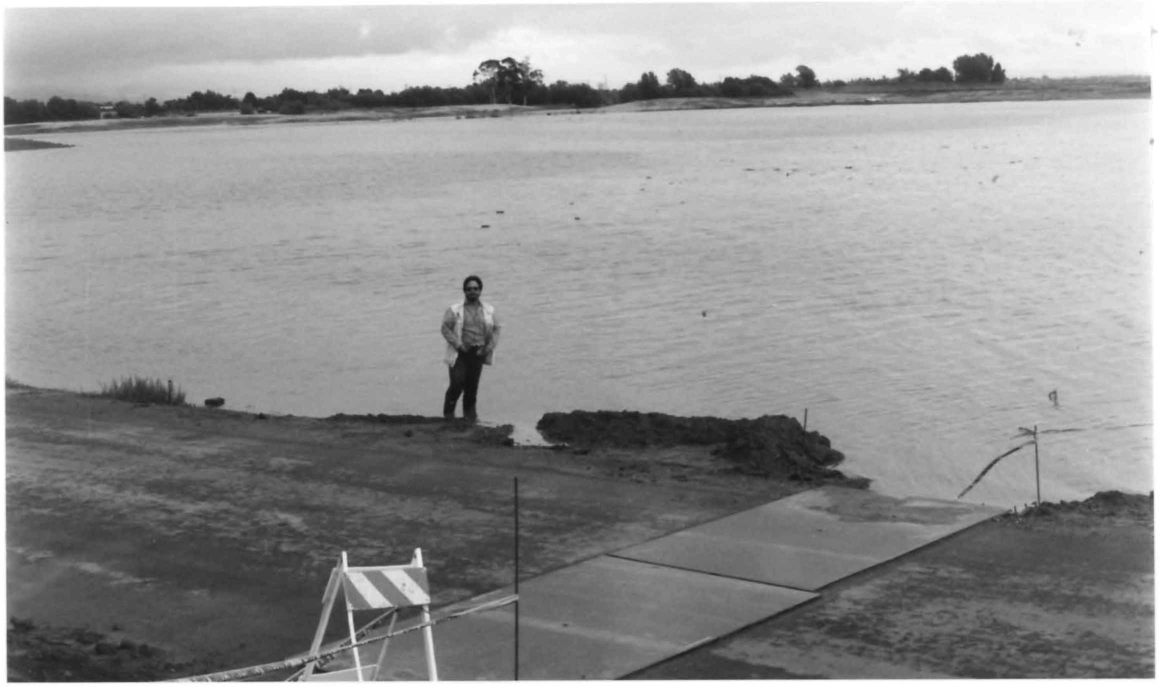

Figure 5. Lake formed by flood waters on Coyote Creek Reach 1 at 1000, 28 May 1990. In mid-picture, above Mr. Katano's head, the waterbird pond west containing levee and roadway are under water. In the foreground is construction work on a storm drain from the adjacent BFI recycling plant apparently scheduled to dump storm waters onto the SMHM management area.

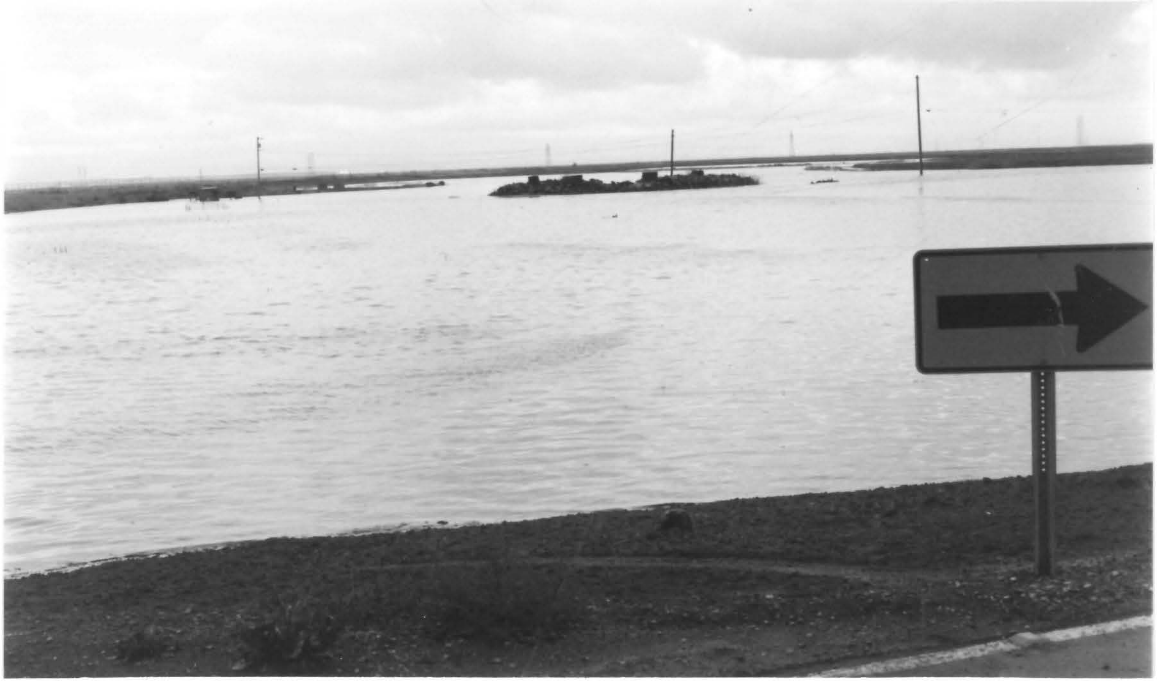

Figure 6. View of SMHM mgmt. area and SJPD bomb disposal area from haul road where it approaches Dixon Landing Road. Note that vegetation is completely inundated, certainly destroying presumed reproductive efforts of the SMHM and nesting efforts of several species of birds. Flood waters are not normally expected in this area in the last week of May.

A review of recession of the water levels -- through the NW culverts may be of value for future management purposes:

May 28 (all water level in feet NGVD)
0800 - Waterbird pond water level 7.15 feet
1000 - Water crested at 7.25 feet in water bird pond -- all the way to Leslie Pond 18 and South Coyote Slough.
1900 - Waterbird pond water level 5.10 feet
A sheet of 1/2 to 1 inch of water continued to flow over the haul road into the waterbird pond.
May 29
1000 - Waterbird pond water level 4.47 feet
SMHM mgmt. area (ditch gage) water level 3.25 feet
May 30
0900 - Waterbird pond 4.26 feet
1500 - SMHM mgmt. ditch water level = 0.27 feet - to approximate pre-flood level.
May 31
0900 - Waterbird pond 4.15 feet
SMHM mgmt. area ditch water level - 0.15 feet.

The following observations seem pertinent.

1. Coyote Creek very likely would have carried the entire flow if the temporary dams were not in place. Had the District anticipated the high water flow and removed part of one of the dams, the flooding probably would not have occurred.

2. This unscheduled flooding washed out some revegetation efforts at the waterbird pond (re: Jeffrey Caldwell). Considerable silt was deposited in the water bird pond. It upset our management schedule for shorebirds and waterfowl on the pond.

3. Monitoring and management tasks required by permit on Reach 1A, already behind schedule, will be further delayed. CCRS was to have begun work on these tasks in February or March under terms of an interim contract with the SCVWD (Mtg. at HRG/John Stanley & Assoc. at Scotts Valley on 12 January 1990). Although we provided a draft contract and budget to Dr. Goldner and to HRG, we have received no substantive reply.

4. This unscheduled flooding killed an undetermined number of nestling birds and young mammals, including young and possibly some attending adult Salt Marsh Harvest Mice as well as other rodents on the SMHM Management Area. On the plus side, relatively few fish (perhaps 100) were lost in this flooding episode.

5. A nearly identical sequence of flooding occurred on 17 September 1989 prior to seasonal removal of the temporary dams. In that event, thousands of fish were killed when washed onto and over the haul road (Figure 7), into the water bird pond, and many on out to the Bomb Disposal area where they were stranded when the water receded. Some thousands of gulls (Figure 8) and hundreds of herons and egrets took advantage of the thousands of stranded fish and dined well.

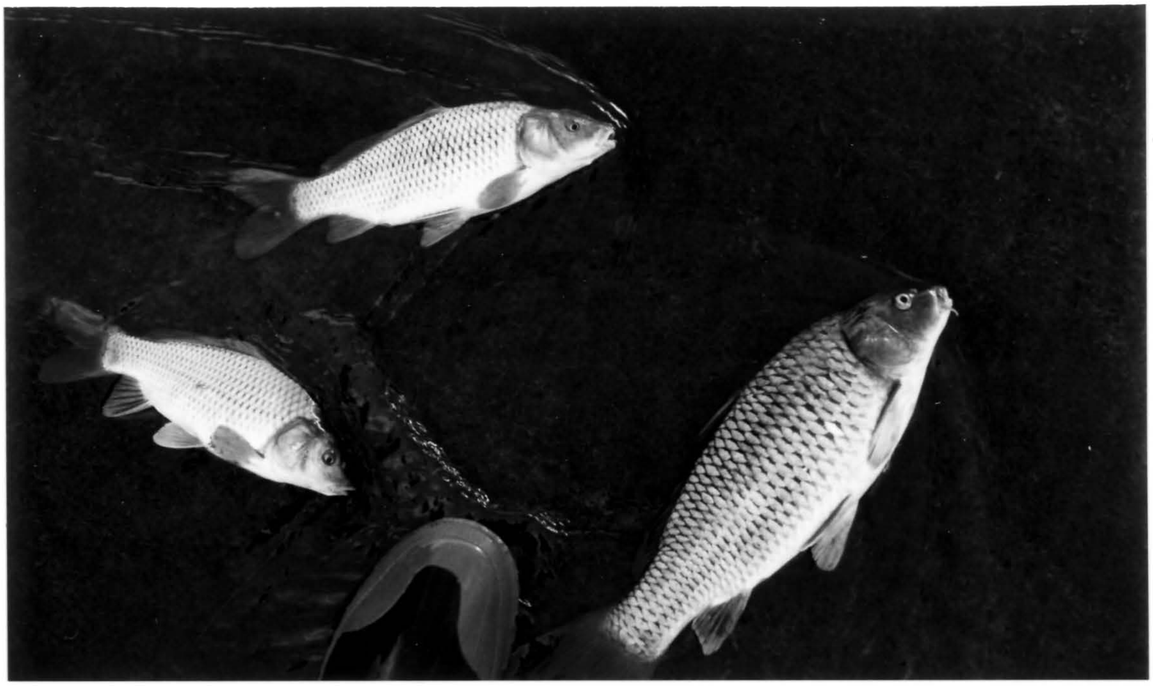

Figure 7. Four of some thousands of fish washed onto the haul road 16-17 September 1989.

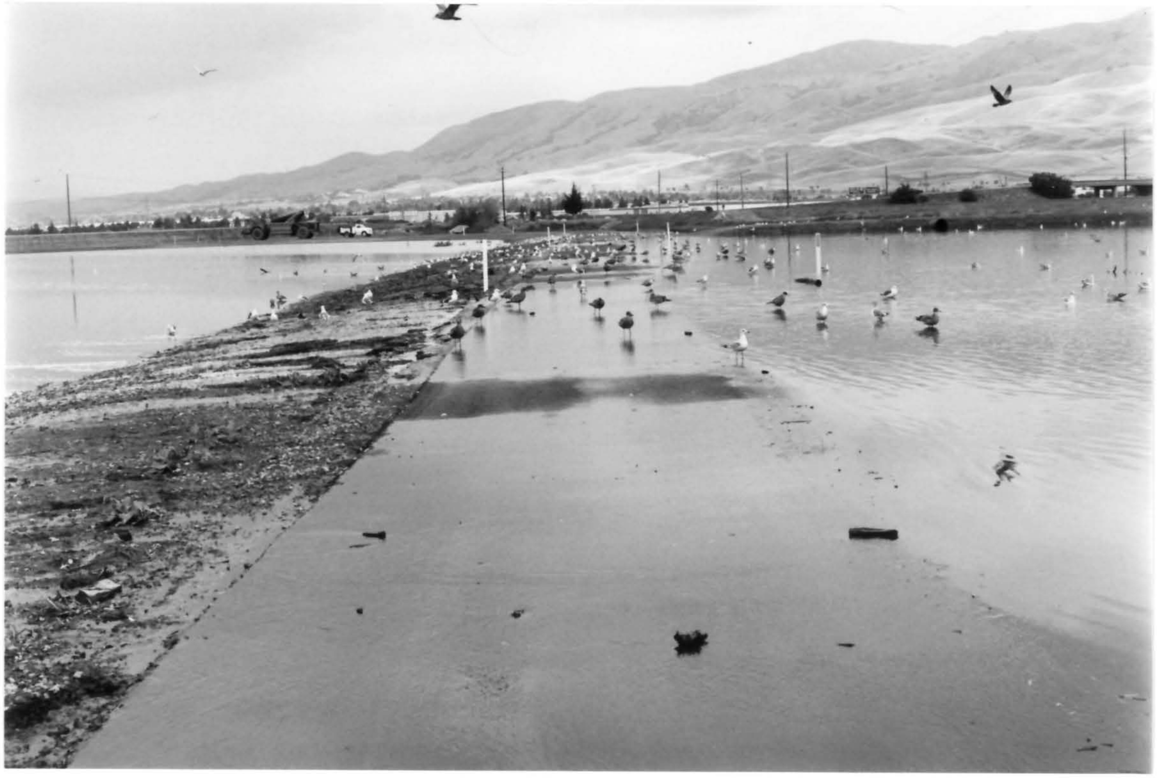

Figure 8. Some of the thousands of gulls, herons, and egrets taking fish washed onto the haul road. This photograph was taken late on 17 September when water levels had gone down and most of the fish had already been eaten.

6. It is likely that waters backed up by the temporary dams caused the unusually high water (Figure 9) in the overflow channel of Reach 2. The overflow channel overflowed onto our CCRS field laboratory area such that equipment stored under and adjacent to the trailer was in about six inches of water.

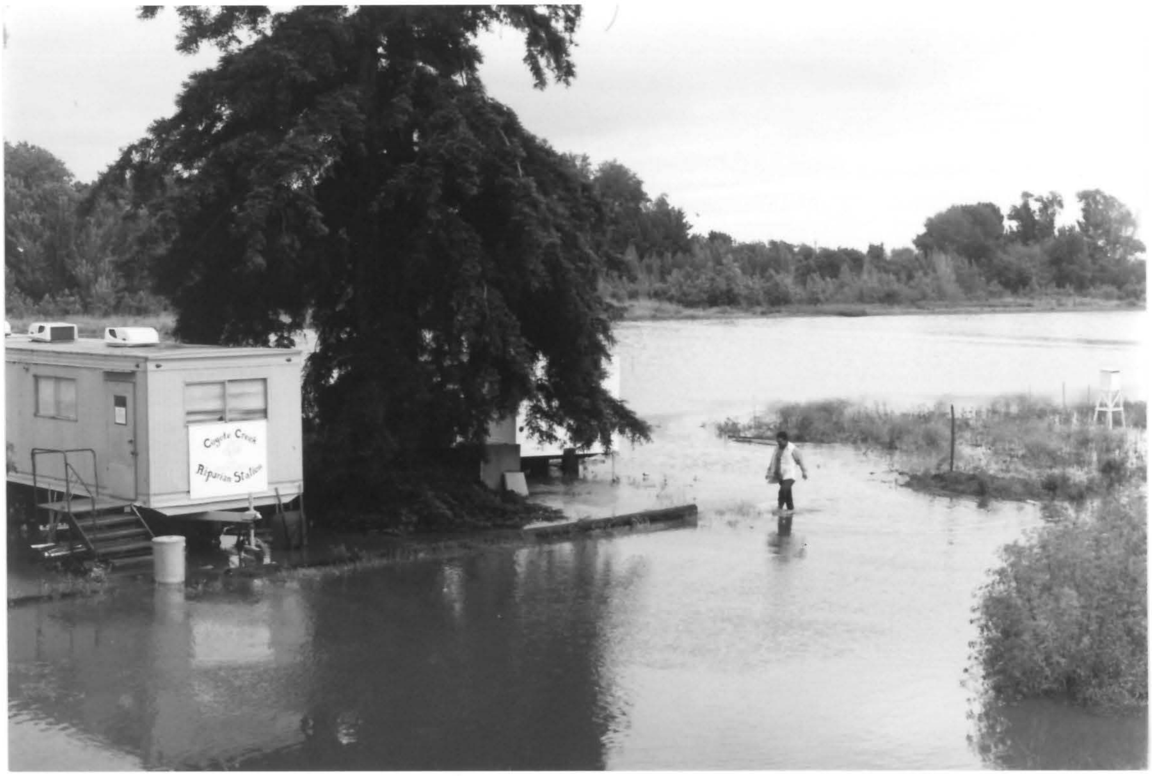

Figure 9. CCRS field laboratory about 1000 on 28 May 1990. Photograph was taken from edge of elevated pad where field laboratory is scheduled to be moved this summer. Beyond the overflow channel (clear water) is Pilot Revegetation Plot #1, established during the 1985-86 winter season.

7. Contractor FIRMA's heavy equipment stood in about a foot of water (Figure 10) at about 1000 on 28 May 1990.

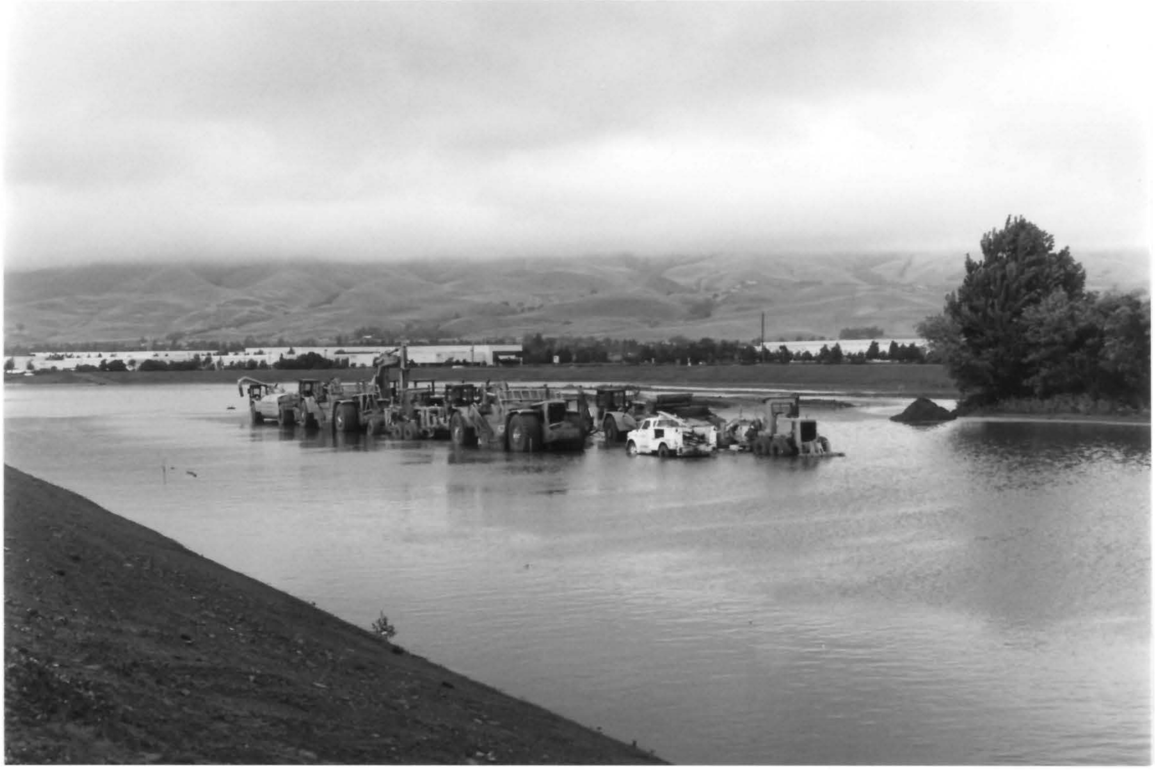

Figure 10. FIRMA equipment in overflow channel (Lower Coyote Flood Control Project - Reach 2) at about 1000 on 28 May 1990 . Re-aligned main channel of Coyote Creek is just beyond heavy equipment.

So that such avoidable and damaging floods can be averted in the future, we suggest that CCRS, as On-site Manager, develop the capability to take corrective action. This should be with equipment already on site, or available on short notice on emergency call to the Water District.

Note, however, that neither of these recent floods occurred during normal working hours. The 16-17 September 1989 flood occurred on a Saturday-Sunday, and the May 1990 flood occurred on Sunday-Monday (Memorial Day). CCRS personnel are familiar with the causes and consequences of these events, and are normally on duty all days of the week, including week-ends and holidays. CCRS personnel are thus in position to take possible corrective action if water control structures are appropriately designed. If beyond CCRS capacity to meet the emergency, there should be a Water District crew we may call upon to take necessary emergency action -- e.g. to notch or remove a temporary dam.

We urge that in the placement of future seasonal dams, or any permanent dams (with or without seasonal manipulation capability), that the Water District consider our experience with these two environmentally destructive floods.